

REMARKS

Claims 1, 2, 5, 10, 20, 22, and 24 through 35 are currently in the case. Claims 3, 6 through 9, 11 through 19, 21 and 23 have been canceled, Claims 26 through 33 were previously added, and Claims 34 and 35 are new. Claim 4 has been withdrawn without prejudice to file a divisional application, based on an earlier Restriction requirement.

Claims 1, 2, 5, 24 and 25 have been non-finally rejected. Claims 6, 10, 12, 20 and 22 have been objected to, and the allowance of Claims 22 through 26 is respectfully acknowledged. The non-final rejection of Claims 1, 2, 5, 24 and 25, and the objection of Claims 6, 10, 12, 20 and 22 are respectfully traversed.

Responsive to the Examiner's objection to the specification for containing the phrase "Fig. 1", the specification has been amended at page 4, line 20; page 11, line 1; and page 13, line 9 to delete the phrase "Fig. 1" and insert therefore "the figure". Responsive to the Examiner's objection to the drawing for containing the phrase "FIG. 1", the drawing has been amended to delete all reference to "FIG. 1". These amendments are believed to obviate the objections.

Claims 1 through 3, and 5 have been non-finally rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,496,785 to Abler. In making the rejection, the Examiner stated "[r]egarding claim 1, Abler '785 discloses a dual impregnated activated carbon suitable for filtering contaminants (abstract) comprising activated carbon and group 6-12 salts including copper chloride (see column 2, line 56) in an amount of at least 0.5, or more specifically 1 to 10 weight percent (see paragraph bridging columns 2-3). Regarding claim 2, Abler '785 disclose wood, coal, coconut, and organic polymers (see column 2, lines 19-21). Regarding claim 3, Abler '785 disclose 1.5-40% metals (see column 3, lines 35-36 and 41-42). Regarding claim 5, Abler '785 discloses potassium permanganate also may be included (see column 1, lines 30-32).

Responsive to the final rejection of Claims 1 through 3, and 5 under 35 U.S.C. § 102(b), Abler fails to meet the standard required of an anticipatory reference. Abler '785 fails to disclose 'an adsorption powder comprising from about 10.1 to about 45 weight percent of copper chloride' as recited in previously amended Claim 1. While the claim has been amended to overcome the continued rejection as anticipated by Abler '785, *i.e.* amended to be outside the cupric chloride limitations of Abler '785, the Examiner has failed to recognize and address the amendment of the claim to overcome the rejection. It is well established that to make out a *prima facie* case of anticipation, the cited reference must contain each and every element of the claims under examination (see *Radio Steel Mfg. Co v. MTD Products, Inc.*, 221 USPQ 657, 661 (Fed. Cir. 984)). Able '785 fails to anticipate 'an adsorption composition comprising from about 10.1 to about 45 weight percent of cupric chloride. It is respectfully submitted that the Examiner's stated rationale for rejection of Claim 1, fails to recognize and address the previous amendment to the claim.

Regarding the Examiner's rejection of Claim 2 as anticipated by Abler '785, Claim 2 is dependent upon Claim 1 for antecedent bases; Claims 1 and 2 stand or fall together. Claim 1 as previously amended is not anticipated by Abler '785. The anticipatory rejection of Claim 3 is unfounded since the claim was canceled in the previous amendment. Responsive to the anticipatory rejection of Claim 5 over Abler '785, the cited reference requires a Group 1, metal carbonate salt. The only Group 1 metal recited in Claim 5 is potassium, and the potassium salts thereof are potassium permanganate and potassium iodide (neither of which are anticipated by Abler), and Claim 5 is dependent upon non-anticipated Claim 1 for antecedent basis. It is respectfully submitted that Abler fails to anticipate any of Claims 1, 2 and 5.

Claim 1 has been rejected under 35 U.S.C. § 102(b) as being anticipated by JP 11-226389 (English abstract also attached). In making the rejection, the Examiner stated that "JP '389 discloses a high surface area (see Table) adsorbent comprising 10-35 mass % of copper chloride (see abstract)."

Responsive to the rejection of Claim 1 as anticipated by JP '385, there was no English abstract included with the Office Action. However, applicants' undersigned representative obtained an English abstract (enclosed herewith) from Micropatents. Accordingly, while the English abstract discloses a carbon monoxide adsorbent containing a mixture of 10 to 35 mass% of copper chloride; 1 to 40 mass% of a compound selected from an iron compound, a manganese compound, and a tin compound; and an inorganic carrier, it fails to reference 'a carbon-based powder' as recited in previously amended Claim 1. In accordance with the requirements of 35 U.S.C. § 102(b), JP '385 failing to specifically recite each and every element of previously amended Claim 1, it fails to meet the statutory standard of an anticipatory, prior art reference as required in *Radio Steel Mfg. Co v. MTD Products, Inc.*

Claim 2 has been non-finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Peng '970. In making the rejection, the Examiner stated that "Peng fails to disclose [sic] activated or graphite carbon as support. It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use activated carbon as support in the cupric chloride comprising adsorbent of Peng because Peng discloses prior art supports of activated or graphite carbon for copper halide (see column 1, lines 57-67) and that supports are well known in the prior art (see column 5, lines 14-16)."

Responsive to the rejection of Claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Peng '970, it is respectfully submitted that Peng fails to teach or suggest 'an adsorbent composition containing cupric chloride and a carbon-based powder. While the Examiner has suggested that it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to use activated carbon as a support for the composition of Peng, he has not supported that proposition by affidavit or other evidence. Peng teaches a composition suitable for adsorbing carbon monoxide prepared by impregnating cupric chloride onto an amorphous oxide selected

from alumina, silica-alumina, silica, titania and mixtures thereof (column 5, lines 14 through 23). During the preparation process, the composition is heated to a temperature greater than 100°C in the presence of a gas selected from carbon monoxide-hydrogen, or synthesis gas (H<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>) to reduce cupric chloride to cuprous chloride (see column 5, lines 39 through 56) to provide a final composition of cuprous chloride impregnated onto the amorphous oxide. The composition taught by Peng '970 is not cupric chloride impregnated onto a carbon-based substrate as taught by the instant claims, nor is there any teaching that the composition of Peng '970 would be suitable for adsorbing vaporous metals, *e.g.* mercury. From a reading of the Peng '970 reference, the instant Claim 1 would have not been obvious to one of ordinary skill in the art because the reference fails to teach a cupric chloride-containing adsorption composition.

Claims 24 and 25 have been non-finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Abler '785 as applied to claims 1 and 5 above, and further in view of Kienow *et al.* '956. In making the rejection, the Examiner stated that "Kienow '956 discloses removal of dioxins, furans, and heavy metals (see column 1, lines 25-28). It is now considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to intend to use the removal of dioxins, furans, and heavy metals (see column 1, lines 25-28) of Kienow with the adsorbent of Abler because Abler discloses his compositions suitable for filtering gaseous contaminants (see abstract), and Kienow discloses his calcium hydroxide in an activated coke (abstract) contaminant cleaning adsorbent (see column 1, lines 15-35) to be useful in essentially all exhaust gas cleaning systems as reactive calcium compounds (see column 3, lines 61-67 and column 4, lines 1-9)."

Responsive to the rejection of Claims 24 and 25 under 35 U.S.C. § 103(a) as unpatentable over Abler '785 in view of Kienow *et al.* '956, Abler fails to suggest an adsorption composition containing 'from at least about 10.1 to about 45 weight percent of cupric chloride' and a carbon-based material suitable for the removal of metals (*e.g.* mercury) and organic compounds from vaporous streams as presently recited in Claim 1.

Kienow fails to suggest the use of cupric chloride and a carbon-based material for the removal of metal (e.g. mercury) from gaseous streams. Kienow suggests the use of a carbon compound and calcium hydroxide for precipitation of acid pollutant gases, such as HCl, SO<sub>2</sub>, HF, etc. (column 1, lines 35 through 39). There is no teaching or suggestion in either reference that would motivate a person of ordinary skill in the art to combine the references as the Examiner has done.

One of ordinary skill in the art would not have combined the references as the Examiner has done to make out the rejection, since the only motivation for combining the references is based on the teaching of 'activated carbon'. While Abler and Kienow teach adsorption compositions suitable for removing inorganic impurities and exhaust emissions from gaseous streams, neither reference teach or suggest the removal of organic compounds, *i.e.* furans and dioxins, or metals (e.g. mercury) from gaseous streams. Abler teaches a composition of activated carbon, Group 1 carbonate salts and Group 6 metals, and Kienow suggests a composition of activated carbon and calcium hydroxide. If anything, the Examiner has combined the references based upon an adsorption composition that utilized activated carbon for removing inorganic impurities from gaseous streams. There must be some suggestion of the use of the adsorption compositions for removing organic compounds and metals for there to be sufficient motivation to apply the references to the presently claimed invention. Both references teach the use of the adsorption compositions for removing inorganic compounds, not organic compounds and metals. Significantly, the cupric chloride content of Abler (from 1 to 10 wt%) is outside the range of previously amended Claim 1 (from about 10.1 to about 45 wt.%). Kienow teaches away from the instantly claimed invention by reciting "pre-cleaned exhaust gas will still contain organic compounds and heavy metals" (column 4, lines 42 through 44), and "the pre-cleaned exhaust gas typically still contains . . . organic compounds and heavy metals" (column 5, lines 35 through 39). Nevertheless, the motivation for one of ordinary skill to combine the references has to be more than the common thread of 'an activated carbon adsorption composition for the removal of inorganic components from gaseous streams'. There also must be a similarity in the use

of the cited references and the claimed invention other than adsorption compositions. It is submitted that Abler's teaching activated carbon and copper chloride for removing inorganic impurities from air, and Kienow's suggestion of activated carbon and calcium hydroxide for removing inorganic impurities from exhaust gas streams is insufficient motivation to make out a *prima facie* obviousness-type rejection of a claim to 'an adsorption composition of activated carbon, cupric chloride, and calcium hydroxide for removing of heavy metals and organic compounds from vaporous streams'. A person of ordinary skill in the art would have not been motivated, at the time the instant claimed invention was made, to combine the referenced to make a *prima facie* of obviousness as the Examiner has done. Even with the combination of the cited references, there is still no teaching of the instantly claimed composition and its intended use.

It should be noted that the present invention is not directed to "exhaust gas cleaning systems". Dioxins, furans (organic compounds), and mercury (heavy metal) are not considered by one of ordinary skill in the art to be components of "exhaust gases", and the Examiner has not supported his contention of the level of ordinary skill in the art with an affidavit stating 'that exhaust gas cleaning systems encompass the removal of organic compounds and vaporous heavy metals'. It is respectfully submitted that motivation for combining references to make out a *prima facie* case of obviousness for the adsorption compositions of the present invention has to be more than a teaching of a carbon substrate for cleaning impurities from gas streams.


Claims 6, 10, 12, 20 and 22 were objected to for depending upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 6 has been canceled and rewritten as new, independent Claim 34 and Claim 10 has been amended to depend thereupon. Claim 12 has been canceled and rewritten as new, independent Claim 35, Claim 20 has been amended to depend thereupon, and original Claim 22 depends upon dependent Claim 20.

CONCLUSION

Entry of the amendments herein, reconsideration and allowance of Claims 1, 2, 5, 6, 10, 12, 20 and 22 are respectfully requested. The Examiner is hereby authorized to deduct an additional fee for newly added, independent Claims 34 and 35 from Deposit Account No. 13-2755. If any additional fees are due, the Examiner is authorized to deduct the same from Deposit Account No. 13-2755.

Should the Examiner have any questions or wish to discuss this case, he is requested to contact Applicants' undersigned representative at his earliest convenience.

Respectfully submitted,

  
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Enclosure:  
1-Figure;  
2-JP11226389 A English Abstract